

If You Wet It, They Will Come ... or Building a Better Bird Feeder!

Bird Response to Wetland Restoration/Enhancement at the Herbert Wetland Prairie Preserve ... the bird inventory checklist has more than doubled!

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Birds are marvelous natural "indicators" of habitat quality and, because of their mobility, they can respond quickly to changes on the landscape. Most of us know that bird feeders and a bird bath can attract birds to our backyards. This is a short story about how SRT, using a process called ecological restoration, built a very big birdbath and bird feeder at their 725-acre Herbert Wetland Prairie Preserve (HWPP).

When Sequoia Riverlands Trust (SRT) bought the Herbert Preserve in 2000, the entire property consisted of relatively unaltered grassland (also called prairie), about 73 acres of leveled, irrigated cattle pasture, and hundreds of seasonally wet vernal pools. Vernal pools are small wetland depressions that fill with the rains of winter and spring (hence "vernal"). Funds to acquire this large property (the purchase price was over \$ 1 Million) included a sizeable grant from the California Wildlife Conservation Board (WCB). The grant funds from WCB came, in part, because large numbers of ducks and shorebirds ... Black-necked Stilts, American Avocets, Killdeer (and other plovers), and sandpipers ... were attracted to the vernal pools during winter and spring. These vernal pools are the wetlands that are celebrated in the name of this "Wetland Prairie" Preserve.

Beginning on April 11, 1992 I visited this property many times before it became a wildlife Preserve. In those days it was owned by Jim and Carol Herbert who affectionately called it the "Wilderness Ranch". Since I had conducted much of the biological survey work that led to the property's acquisition, I had seen quite a variety of birdlife on the property but the landscape was usually pretty dry during the summer months. When SRT bought the property, few water birds could be found at the Preserve during the summer nesting season because by then the vernal pools were dry. In those days, the only water that could be found on the property during summer was an intermittent flow of irrigation water along ditch-like Lewis Creek (then kept "clean" of "weeds" by an irrigation district) and sheet-flows from alfalfa valves used to grow cattle feed on previously leveled land (73 acres) at the northwest corner of the preserve.

Two years after SRT acquired the Herbert Preserve, a number of individuals and agencies, including Natural Resources Conservation Service (NRCS) put together an ambitious plan to establish summer freshwater wetlands (pond and marsh habitat) and riparian (streamside vegetation of willows, oaks, and cottonwoods) habitat on the 73 acres which had been leveled cattle pasture. Along with the familiar "3 R" mantra of ecology ... **R**educe, **R**euse, and **R**ecycle", ecological **R**estoration is a process of healing and enhancing altered natural lands to improve the habitat for native plants and animals.

A special three-year, \$127,000 grant from the California Wildlife Conservation Board (WCB) funded the first part of this "healing" process ... the earth-moving work. Heavy equipment (scrapers, tractors, and bulldozers) took on the task of returning the previously laser-leveled pasture to something like its original gently rolling, hummocky topography. The equipment operators (usually hired to level rough, uncultivated ground) commented about how fun and challenging it was to try and terra-form the site ... to put the land surface back to the way it was in the late 1800s when settlers first crossed these prairies. When the re-contouring work was done in October 2002, the 73-acre site was devoid of vegetation but a new meandering channel (since dubbed Sellers Slough in honor of Carol Sellers Herbert, one of the original owners) and 3 ponds had been excavated and were just awaiting a "wetting" invitation. Native grasses had been planted along Sellers Slough and needed rain and a christening flow of water down the new channels into the new ponds in order to green up the restoration site.

What happened next is nothing short of amazing! During the "pre-wetting" stage, which lasted just over 10 years (April 11, 1992 to October 12, 2002) I had visited the Herbert property (now a Preserve) on 46 different field days and had inventoried 76 different bird species at the Preserve. Although our continent boasts an avifauna of several hundred bird species, 76 different kinds of birds is a pretty impressive inventory for what is mostly grassland here in arid Central California.

Since the end of earth-moving work, I have made over 300 additional visits to the Herbert Preserve. This "post-wetting" period can be separated into two stages: 1) The Wildlife Conservation Board (WCB) grant period, which covers 115 field survey days between November 14, 2002 (when the first water was released into the man-made channels of Sellers Slough and the 3 man-made ponds) and October 28, 2005 (the approximate submittal date of the final progress report to WCB); and 2) The United States Bureau of Reclamation (USBR) monitoring grant period, which covers over 200 field survey days between November 4, 2005 (the end of the WCB grant period) and April 28, 2012 (the date dusky flycatcher became the most recent addition to the Preserve birdlist ... the date I wrote this article).

During the entire post-wetting and restoration/revegetation period (November 14, 2002 to April 28, 2012) 77 additional bird species have been added to the avian inventory at the Preserve (please see attached file with a list of all 153 bird species and their first observation dates). This is an increase of over 100% ... a doubling of bird species in about 10 years over the initial bird species inventory of 76 species (which took over 10 years to compile). This is a remarkable testament to the effectiveness of ecological restoration ... if you build it ... if you wet it ... they will come!

The 77 additional species include birds in the following categories:

- Wetland species (W) - 31 species were added to the HWPP bird inventory because of their appearance in ponds, sloughs, marsh, and mudflats that resulted from the addition of water to the wetland portion of the 73-acre habitat restoration project.

- Upland Vegetation (UV) – 22 species were added to the HWPP bird inventory because they now use the native grasses, wildflowers, and dense, ungrazed annual and perennial upland plant cover that has grown on the upland portion of the 73-acre habitat restoration project.
- Riparian (R) – 8 species were added to the HWPP bird inventory because of their appearance in streamside grasses, forbs, and trees that resulted from the slough-edge portion of the 73-acre habitat restoration project.
- Aerial Foragers (AF) – 5 species were added to the HWPP bird inventory because they were observed in the air foraging over that portion of the Preserve where habitat restoration and revegetation was conducted). These are species which were either attracted to the area because suitable habitat or suitable prey are now present in an area where they were absent previously
- Flyovers (F) – 5 species were added to the HWPP bird inventory because they were seen briefly in flight over the property (but their appearance over the property suggests that they simply crossed the airspace above the Preserve as they flew from one place to another (but did not pause on the property or appear to be actively foraging over the Preserve's uplands or wetlands.
- Grassland (G) – 5 species were added to the HWPP bird inventory because they were attracted to existing grassland (grassland that was present on the Preserve even before the 73-acre habitat restoration project) including grassland areas with perimeter fence or cross-fence.
- Vernal Pools (VP) – 1 species was added to the HWPP bird inventory because it was attracted to one of the larger vernal pools near the south end of the Preserve (its appearance on the property suggests that it was attracted to an ephemeral wetland feature that was present on the Preserve even before the 73-acre habitat restoration project.

The 31 Wetland (W) species added to the HWPP avian inventory (in order of their appearance at HWPP) are: Western Sandpiper (April 30, 2003), Dunlin (April 30, 2003), American Coot (May 15, 2003), Spotted Sandpiper (May 21, 2003), Caspian Tern (May 25, 2003), American White Pelican (May 25, 2003), Pied-billed Grebe (May 26, 2003), Yellow-headed Blackbird (May 26, 2003), Ruddy Duck (June 6, 2003), Wilson's Phalarope (June 6, 2003), Black-crowned Night-Heron (July 22, 2003), Common Gallinule (July 9, 2004), Clark's Grebe (January 18, 2005), Redhead (March 24, 2005), Blue-winged Teal (April 8, 2005), Eared Grebe (April 10, 2005), Common Goldeneye (April 13, 2005), Great-tailed Grackle (April 13, 2005), Short-billed Dowitcher (April 21, 2005), Snowy Egret (April 27, 2005), Semipalmated Plover (July 23, 2005), Sora (July 23, 2005), Baird's Sandpiper (August 16, 2005), Wood Duck (August 16, 2005), Marbled Godwit (August 25, 2005), Snow Goose (November 17, 2005), American Bittern (May 10, 2006), Red-necked Phalarope (September 6, 2006), Canvasback (February 14, 2008), Virginia Rail (April 30, 2011), and Pectoral Sandpiper (October 3, 2011).

The 22 Upland Vegetation (UV) species added to the HWPP avian inventory (in order of their appearance at HWPP) are: Vesper Sparrow (November 16, 2002), Short-eared Owl (November 29, 2002), American Goldfinch (December 1, 2002), Cooper's Hawk (December 5, 2002), Brown-headed Cowbird (April 17, 2003), Brewer's Sparrow (May 4, 2003), Black-chinned Hummingbird (July 5, 2003), Bullock's Oriole (July 9, 2003), MacGillivray's Warbler (May 19, 2004), Barn Owl (November 4, 2004), Lesser Goldfinch (November 18, 2004), Willow Flycatcher (June 3, 2005), Northern Mockingbird (June 6, 2005), Yellow-rumped Warbler (November 4, 2005), Great Horned Owl (prior to March 17, 2006), Lawrence's Goldfinch (March 24, 2006), Hermit Thrush (April 8, 2006), Northern Flicker (April 25, 2006), Bobolink (September 6, 2006), Golden-crowned Sparrow (December 30, 2006), Dark-eyed Junco (October 3, 2008), and Eurasian Collared-Dove (November 7, 2010).

The 8 Riparian (R) species added to the HWPP avian inventory (in order of their appearance at HWPP) are: Lincoln's Sparrow (November 16, 2002), Song Sparrow (July 9, 2003), Red-shouldered Hawk (August 16, 2005), Common Yellowthroat (April 15, 2006), Ruby-crowned Kinglet (January 15, 2007), Orange-crowned Warbler (September 28, 2008), House Wren (September 25, 2010), and Dusky Flycatcher (April 28, 2012).

The 5 Aerial Forager (AF) species added to the HWPP avian inventory include: Bank Swallow (seen foraging over Area C on May 4, 2003), White-throated Swift (these aerial foragers have foraged just above the ground and even down in the man-made slough channels on 5 different days since they were first seen at HWPP on February 28, 2004), Peregrine Falcon (checked out waterfowl/shorebirds on March 24, 2006 and July 15, 2011), Purple Martin (2 birds foraged over Sellers Slough on April 10, 2006), and Tricolored Blackbird (first of four dates seen in flight over the property was August 22, 2006).

The 5 Flyover (F) species added to the HWPP avian inventory (in order of their appearance at HWPP) are: Common Merganser (February 1, 2003), California Gull (February 1, 2003), Greater White-fronted Goose (February 11, 2007), Ring-billed Gull (December 4, 2010), and Glaucous-winged Gull (December 4, 2010).

The 5 Grassland (G) species added to the HWPP avian inventory (in order of their appearance at HWPP) are: Mountain Bluebird (November 1, 2003), Hammond's Flycatcher (April 25, 2006), California Scrub-Jay (October 10, 2006), Lark Bunting (May 23, 2007), and Anna's Hummingbird (September 28, 2008),

The 1 Vernal Pool (VP) species added to the HWPP avian inventory is: Ross's Goose (January 7, 2004).

20 bird species have been added to the list of documented breeding species at HWPP since the completion of the restoration/revegetation work. These nesting birds fall into 2 categories:

- Those species which were already known to be part of the HWPP avifauna but which were not documented as nesting species until after the completion of the restoration/revegetation work. These 13 species are: Mallard, Cinnamon Teal, Northern Harrier, Black-necked Stilt,

American Avocet, Killdeer, Lesser Nighthawk, Western Kingbird, Black Phoebe, Loggerhead Shrike, Common Raven, Barn Swallow, and Red-winged Blackbird. 10 of these 13 species began to nest at HWPP because of habitat changes/improvements that are associated with the restoration/ revegetation process in both wetland and upland habitats. The two exceptions from this list are Lesser Nighthawk, Western Kingbird, and Common Raven. Nests of these 3 species were documented near the pole barn and in parts of HWPP which were not altered or affected by the 73-acre restoration/revegetation work.

- Those species which have been added to the avian inventory **AND** which have been documented as breeding species at the HWPP since the completion of the restoration/revegetation work. These 8 species are: Ruddy Duck, Pied-billed Grebe, Common Moorhen, American Coot, Northern Mockingbird, Song Sparrow, Great-tailed Grackle, and Brown-headed Cowbird. 7 of these 8 species began to nest at HWPP because of habitat changes/improvements that are associated with the restoration/revegetation process in both wetland and upland habitats. The only exception among the 8 species on this list is northern mockingbird.

The habitat restoration and revegetation work in Area C, in addition to attracting new bird species to inhabit and nest in restored wetland and upland habitats, has also modified habitats in ways that have increased resident or seasonal populations for species which were already of regular occurrence at HWPP. Mean daily totals of 29 of the 76 bird species (38% of those species) that were already on the HWPP checklist on or before October 12, 2002 (just before the first water was released into the man-made channels of Sellers Slough and the 3 man-made ponds) have increased in ways that appear to be associated with the restoration/revegetation work that has taken place in the 73-acre wetland and upland habitat. Those 29 species for which we have documented population increases are: **Northern Shoveler, Great Blue Heron, Great Egret, White-tailed Kite, Northern Harrier, Swainson's Hawk, Red-tailed Hawk, Black-necked Stilt, American Avocet, Killdeer, Lesser Yellowlegs, Whimbrel, Long-billed Curlew, Least Sandpiper, Long-billed Dowitcher, Mourning Dove, Black Phoebe, Say's Phoebe, Western Kingbird, Tree Swallow, Northern Rough-winged Swallow, Cliff Swallow, American Pipit, Savannah Sparrow, White-crowned Sparrow, Blue Grosbeak, Red-winged Blackbird, Western Meadowlark, and Brewer's Blackbird.** It is significant to note how many of the species on this list are birds of prey, birds associated with wetland habitat, grassland birds, and Neotropical migrants. 27 of these 29 species (those noted in **bold type**) belong to groups of bird species that are of conservation concern for one reason or another.

Since the current bird species inventory at the Herbert Preserve now stands at 153 species (one more than double the original pre-"wetting" number of 76 species), I'm on a personal mission to see how high this list will grow as the riparian habitat "matures" and as additional migratory species visit the sloughs and ponds at the Preserve over the years. Young riparian trees and shrubs (valley oaks, willows, cottonwoods, button willow, elderberry, and blackberry) that have been planted along Sellers Slough near the northwest corner of the preserve are now getting tall enough that I fully expect that on one of my next birding visits, I will be lucky enough to find a Western Wood-Pewee, a Western Bluebird, Phainopepla (Google an image of that stylish bird!), a Wilson's Warbler, a Western Tanager, a Spotted Towhee, a Fox Sparrow, or a Black-headed Grosbeak perched in these

plants (which are irresistible to migrating songbirds like these 8 species). It is already very satisfying for me when I see those young trees (many planted by some of my former college students and other SRT restoration volunteers) growing on a landscape once devoid of trees. Each moment of unpredictable serendipitous discovery when I add a new bird species to the Preserve inventory will be uniquely, personally satisfying ... a noteworthy numerical benchmark of ecological restoration at the Herbert Wetland Prairie Preserve.

We built it ... we wetted it ... and they *did* come!